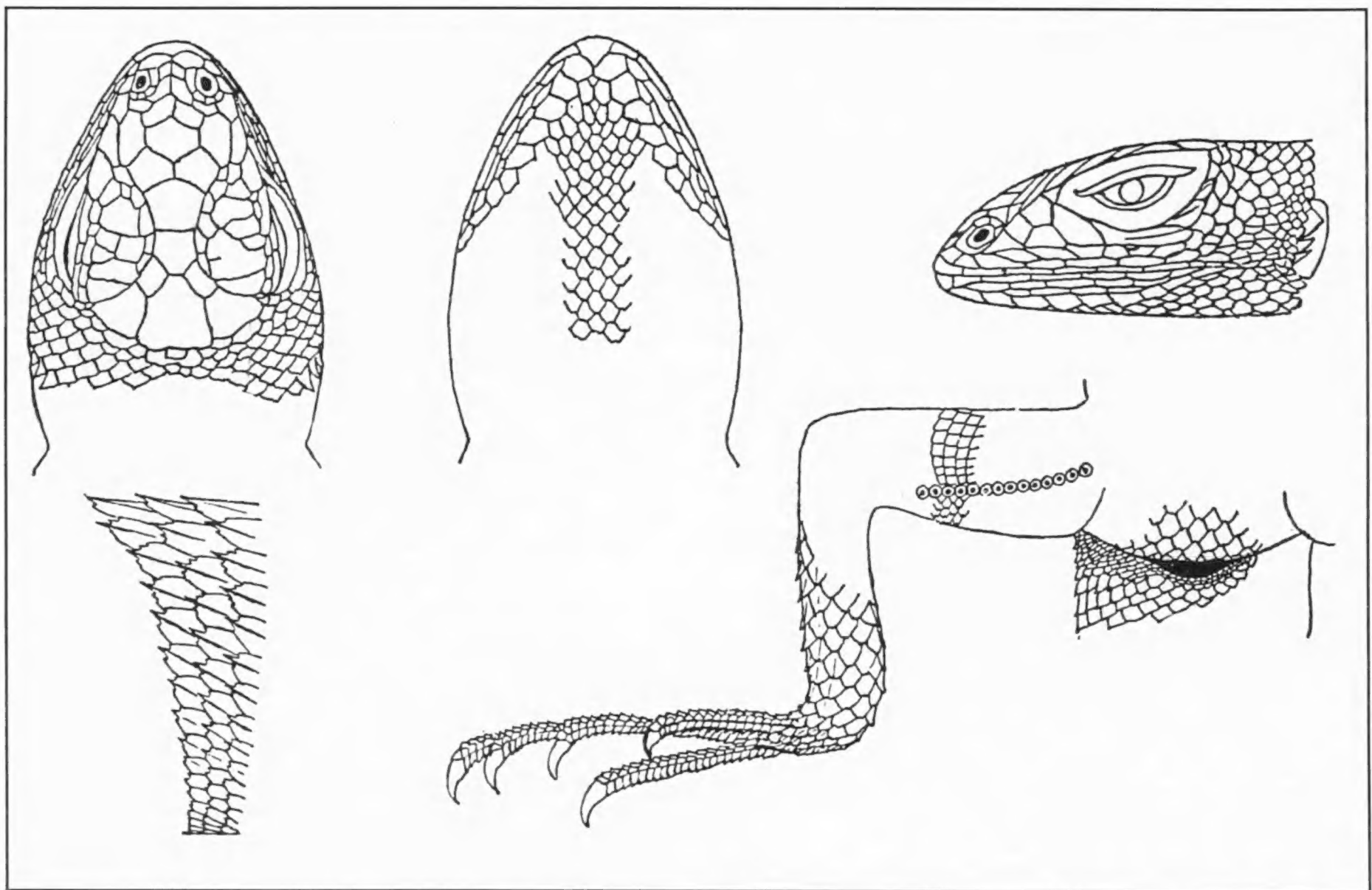


BULLETIN
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Drawing of *Sceloporus clarki* from "The Crocodilians, Lizards, and Snakes of North America" by Edward Drinker Cope, 1900, Part II of the Annual Report of the U.S. National Museum for the Year Ending June 30, 1898.

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Growth and Morphometry of Hatchling Clark's Spiny Lizards (*Sceloporus clarki*)

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Lizards are subject to genetic and environmental factors which can influence their life histories. Growth rates, for example, can be influenced by between-population genetic differentiation (e.g., Ferguson and Brockman, 1980; Niewiarowski and Roosenburg, 1993; Smith et al., in press), as well as by environmental variation such as fluctuation in food supply (Andrews, 1976, 1979; Dunham, 1978, 1981; Ballinger and Congdon, 1980; Stamps and Tanaka, 1981; Guyer, 1988). In this study, we consider growth of hatchling *Sceloporus clarki* raised in the laboratory. We consider the influence of the amount of food consumed on growth. We also examine changes in body shape during the initial growth of the hatchlings.

Sceloporus clarki is a relatively unstudied North American sceloporine lizard. Tinkle and Dunham (1986) described the life history of a population of *S. clarki* in central Arizona. Tinkle (1982) studied the interactions of *S. clarki* with sympatric lizards (*S. undulatus* and *Urosaurus ornatus*). Additional information on reproduction and sexual dimorphism can be found in Fitch (1970, 1978).

Gravid female *S. clarki* were obtained from the Chiricahua Mountains of southeastern Arizona. Gravid females were allowed to oviposit on sand. Eggs were incubated on a 50:50 mixture (by mass) of water and vermiculite that was placed in glass dishes. The glass dishes were sealed in plastic bags and placed in an environmental chamber set at approximately 30°C. Moisture of the substrate was checked and maintained throughout incubation.

Hatchlings were individually kept in plastic cages (30 × 16 × 8 cm) with screen tops and provided with water and 10 hours radiant heat per day (75W bulb suspended 30 cm above the substrate). The position of the light bulb at one end of the cage generated a temperature gradient (20 to 40°C) in which hatchlings could thermoregulate. Each hatchling was fed five crickets a day, increased to 10 crickets a day after 13 days. Crickets were dusted with a calcium and phosphorus supplement. At the beginning of the study, the crickets used to feed the hatchlings each weighed on average 0.0043 g. Twice during the study, the average mass of the crickets used for food was increased, first to 0.0182 g, and then to 0.0245 g. The number of crickets eaten in a 24 h period was recorded. Hatchlings were measured weekly. Measurements included: snout-vent length (SVL; to nearest 0.1 mm), body mass (BM; to nearest 0.1 g), head width (HW: measured at widest point of head; to nearest 0.01 mm), head length (HL: measured from anterior edge of ear to tip of snout; to nearest 0.01 mm), and rear femur length (RFL: from knee to center of body; to nearest 0.01 mm). Hatchlings were sexed by the presence of enlarged post-anal scales in males.

Approximately 12 h after hatching, hatchlings used in this study had a mean SVL of 26.5 ± 0.4 mm (range = 25.0–27.8 mm) and a mean BM of 0.66 ± 0.02 g (range = 0.58–0.73 g). At the end of the study, the five remaining *S. clarki* (one individual escaped) averaged 37.5 ± 1.2 mm in SVL (range = 35.0–41.0 mm) and 1.66 ± 0.16 g (range = 1.36–2.20 g) in BM. Mean growth per day was 0.263 ± 0.023 mm (N = 6). On average, hatchlings gained 0.023 g per day (N = 6) over the course of the study. Hatchlings consumed a mean cricket biomass of 0.071 g per day (N = 6).

Growth rate was not related to initial SVL (N = 6, $R^2 = 0.03$, $P = 0.73$). Likewise, change in BM was not related to initial BM (N = 6, $R^2 = 0.31$, $P = 0.25$). Growth rate increased with higher per day consumption rate; however, due to low sample sizes, the relationship was not quite statistically significant ($y = 0.111 + 2.15x$; N = 6, $R^2 = 0.54$, $P = 0.10$). Change in BM also increased with increased per day consumption rate, but the relationship was similarly not statistically significant ($y = 0.008 + 0.212x$; N = 6, $R^2 = 0.42$, $P = 0.16$).

Initial SVL did not influence cricket biomass consumed per day (N = 6, $R^2 = 0.62$, $P = 0.60$). However, initial BM positively and marginally significantly influenced per day consumption rate ($y = -0.13 + 0.30x$; N = 6, $R^2 = 0.62$, $P = 0.06$).

At hatching there was no statistically significant sexual dimorphism in either SVL (df = 4, $t = -1.32$, $P = 0.26$) or BM (df = 4, $t = -1.28$, $P = 0.27$). At the end of the study, there was still no statistically significant sexual dimorphism but the difference in mean SVL between the sexes was on the order of 3 mm (males: 35.4 ± 0.4 mm (N = 2); females: 38.9 ± 1.5 mm (N = 3); df = 3, $t = -1.79$, $P = 0.17$), and the difference in mean BM was on the order of 0.5 g (males: 1.38 ± 0.02 g (N = 2); females: 1.85 ± 0.19 g (N = 3); df = 3, $t = -1.90$, $P = 0.15$). Growth rate did not differ between the sexes (df = 4, $t = -0.55$, $P = 0.61$). Change in BM also did not differ between the sexes (df = 4, $t = -1.75$, $P = 0.15$).

The ratio of BM to SVL increased as the study progressed. There was a marginally significant difference in the change of the BM:SVL ratio between males and females (df = 4, $t = -2.15$, $P = 0.10$). Females gained weight at a faster rate relative to SVL than males did (males: 0.0037 ± 0.0001 g/mm per day (N = 3); females: 0.0051 ± 0.0006 per day (N = 3)). The ratio of HW to SVL decreased with time (mean rate: -0.0007 ± 0.0002 per day (N = 6)), and no differences between the sexes existed (df = 4, $t = 0.13$, $P = 0.90$). The ratio of HL to SVL also decreased with time (mean rate: -0.0009 ± 0.0001 per day). Again there was no difference between males and females in this rate of change (df = 4, $t =$

-0.69, $P = 0.53$). The ratio of HW to HL increased across the study (mean rate: 0.0007 ± 0.0004 per day), with no difference in the rate of change between males and females ($df = 4$, $t = 1.38$, $P = 0.24$). The length of the femur decreased slightly relative to SVL with time (mean rate = -0.0001 ± 0.0001 per day). Males and females did not have significantly different rates of allometric change ($df = 4$, $t = -1.14$, $P = 0.32$).

Discussion

Mean growth rate of hatchling *Sceloporus clarki* in this study (0.265 mm/d) was similar to that reported for wild-caught hatchlings in central Arizona (0.33 mm/d; Tinkle and Dunham, 1986). Male and females did not show different growth rates, which also agrees with the field observations of Tinkle and Dunham (1986). Although low sample sizes preclude certainty, it appeared that food consumption influenced growth rate and weight gain in the hatchlings. In a concurrent study, *Sceloporus virgatus* hatchlings exhibited a similar effect (G. R. Smith, unpubl. data). In addition, individuals born at greater body masses tended to eat more, and so would be expected to grow more. This suggests that females that produce larger hatchlings may produce hatchlings that feed more, and subsequently grow faster. Increased growth rates may increase survivorship or future reproductive success by increasing size (Baverstock, 1978; Ferguson and Bohlen, 1978; Ferguson and Fox, 1984).

Hatchling *S. clarki* change shape as they get larger. As hatchlings grow older, they become heavier relative to their length. Their heads become proportionately smaller, both in length and in width, relative to their body length, and they become relatively wider in proportion to their length. In addition, there is a slight decrease in the relative length of the femur. Interestingly, there were no differences between the sexes in the changes in these ratios (except for the ratio of BM to SVL). Several species show sexual dimorphism in head width or length (see Shine [1989] for review). Unfortunately there are no data on head dimorphism in adult *S. clarki*.

Females gain weight faster relative to SVL than males. Whether this is an artifact of small sample size or not is unknown, but it suggests there may be allocation differences between males and females (i.e., females put more energy into gaining mass rather than length). However, there were no differences in SVL growth rate between the sexes implying that females do not make a trade-off between increasing BM and increasing SVL.

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The Herpetofauna of Nottingham Park and the Serpentine Barrens of Chester County, Pennsylvania

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Introduction

Forty-six of Pennsylvania's 73 species of amphibians and reptiles have been recorded from Chester County (McCoy, 1982). These include the state-endangered New Jersey chorus frog, *Pseudacris triseriata kalmi*, and bog turtle, *Clemmys muhlenbergii*, as well as the broad-headed skink, *Eumeces laticeps*, and rough green snake, *Opheodrys aestivus*, both listed as vulnerable in the state (McCoy, 1985a) and known reliably in eastern Pennsylvania only from Chester County. In addition, the only plausible record for the tiger salamander, *Ambystoma tigrinum*, in Pennsylvania is from London Grove, south central Chester County (Netting, 1938; McCoy, 1982; Williams, 1985). The eastern kingsnake, *Lampropeltis getula getula*, which has not been verified as a Pennsylvanian species, has also been reported from Chester County (Jennersville) (McCoy, 1982; Groves, 1985b).

Despite the herpetological significance of Chester County within Pennsylvania, relatively little research has been carried out there. Adjacent counties have been treated in detail in older works (e.g., Delaware County – Dunn [1915], Fowler [1915]; Lancaster County – Roddy [1928]; Berks County – Mohr [1939], Baldauf [1943]), but Chester County has not been the focus of directed, county-wide, herpetofaunal studies. Nearly all of the early records of amphibians and reptiles are derived from the works of Surface (1906, 1908, 1913) and originate from the northern parts of the county (Honey Brook, St. Peters, Elverson, Spring City), the Main Line (Devon, Berwyn, Paoli), the West Chester area (West Chester, Westtown, Parkersville) or from the Downingtown–Coatesville–Parkesburg area. Only a single record of *Terrapene carolina* from Avondale (Surface, 1908) comes from the southwest of the county. Subsequently a number of herpetologists have extended field work into the extreme southwestern part of Chester County in the vicinity of Nottingham (Figure 1). It is in this part of the county that one of the most unique habitats in Pennsylvania is to be found.

A region known as the State-Line Barrens occurs on a serpentine outcropping that straddles the border between Cecil County, Maryland, and Chester and Lancaster counties, Pennsylvania (Grantham, 1979). The Pennsylvania portion of the barrens is referred to as the Nottingham Barrens. The soils of this area are typical of serpentines in that they are nutrient deficient, with high levels of magnesium, nickel and chromium

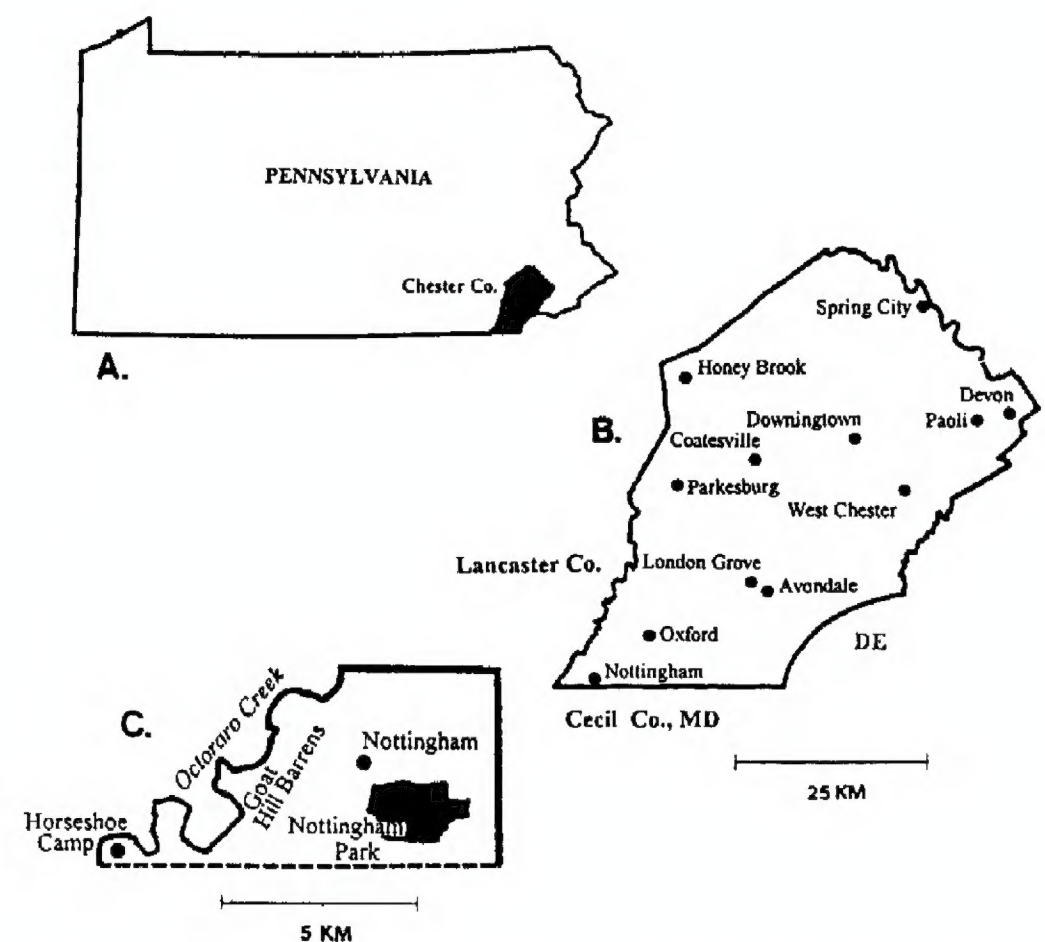


Figure 1. Locator maps for localities mentioned in the text. A). The position of Chester County in southeastern Pennsylvania, adjacent to the northeastern corner of Maryland and the northwestern edge of Delaware. B). Enlargement of Chester County showing major sites at which herpetological collections have been made. C). Enlargement of the area of the extreme southwestern corner of Chester County reported on in this paper. Collections were made by the authors in the 651-acre Nottingham Park (shaded black). Octoraro Creek forms the boundary with Lancaster County. The dashed line is the Mason-Dixon Line, separating Chester County from Cecil County, Maryland.

(Poliero, 1991). The stresses imposed by the soil chemistry of serpentines typically result in plant communities that are distinctive from those of adjacent nonserpentine sites (Brooks, 1987). The Nottingham Barrens are dominated by pitch pine, *Pinus rigida*, but also support serpentine endemics as well as species more typical of prairies to the west of Pennsylvania (Grantham, 1979). The Nottingham Barrens/Goat Hill complex is the most extensive serpentine barrens in the United States (Anonymous, no date). It is one of several serpentine areas in Pennsylvania and has been regarded as one of the most exemplary with respect to its representation of typical serpentine vegetation (Grantham, 1979).

In Chester County the barrens are divided by agricultural land and housing developments into the western Goat Hill Barrens (approximately 700 acres [2.83 km²]), managed by the Nature Conservancy, and an eastern portion, currently administered by the Chester County Parks and Recreation Department as Nottingham Park (651 acres [2.63 km²]). Somewhat more than half of the park's area is occupied by the pitch pine-dominated vegetation of the barrens, the remainder of the natural areas of the park are characterized by the deciduous forest typical of southeastern Pennsylvania and adjacent areas. Aquatic habitats in the park include the Black Run stream system, and several lentic habitats: McPherson Lake (approximately 3 acres [12,500 m²]) and two much smaller bodies of water, Little Pond and the Mystery Hole (a water-filled quarry).

A preliminary review of the herpetofauna of the serpentine barrens of Chester County, based only on one collection, was provided by Warny (1985). However, he did not provide exact locality data, nor did he indicate which species were actually collected and where the resulting specimens were deposited. Warny (1985) recorded a total of 13 species from the area (*Eurycea bislineata*, *E. longicauda*, *Plethodon cinereus*, *Pseudotriton ruber*, *Rana catesbeiana*, *R. clamitans*, *R. palustris*, *Chrysemys picta*, *Coluber constrictor*, *Diadophis punctatus*, *Elaphe obsoleta*, *Nerodia sipedon* and *Thamnophis sirtalis*).

Because of the juxtaposition of habitat types over a very short geographical distance, the area around Nottingham might be expected to support a particularly rich herpetofauna. In order to determine if this was true and to provide a reliable database for the many conservation efforts aimed at preserving the barrens, we undertook a field and museum collection based survey of the area. Our results are based on our own collections and observations from Nottingham County Park made between spring 1990 and summer 1994 (voucher specimens deposited in the collections of the Carnegie Museum [CM], the California Academy of Sciences [CAS] and the teaching collection of Villanova University [AMB]). This material is marked by an asterisk in the "Specimen records" section under the species accounts. Our own collections have been supplemented by older museum records, chiefly from the Carnegie Museum (CM), Academy of Natural Sciences of Philadelphia (ANSP), the American Museum of Natural History (AMNH) and the United States National Museum (USNM), in order to provide a complete survey of the Nottingham Barrens area of Chester County, Pennsylvania. Our scientific and common

names follow Collins (1990) and Conant and Collins (1991).

Species Accounts

AMPHIBIA

Caudata

Desmognathus fuscus fuscus Northern Dusky Salamander
Specimen records: CM 14621, "pine barrens near Nottingham"; AMB 3893*, "Black Run, by McPherson Lake, Nottingham Park"; CAS 180301, "Black Run, Nottingham Park".

This species is very common in and along Black Run in Nottingham Park and in all stream systems investigated in southern Chester County. Additional unnumbered voucher specimens are in the teaching collection of Villanova University.

Eurycea bislineata Northern Two-lined Salamander
Specimen records: AMNH 116522-4, "1-2 mi. west of Nottingham"; CM 110369-70, "Northeast Creek, 0.5 miles from Maryland State Line"; AMB 3890-2*, "Black Run, by McPherson Lake, Nottingham Park".

Two-lined salamanders are commonly encountered in and along Black Run.

Eurycea longicauda longicauda Longtail Salamander
Specimen records: CM 140183*, "Buck Trail, Nottingham Park"; AMNH 118114, "Nottingham County Park".

Although this species occurs throughout Pennsylvania, the only previously published Chester County records have been from along the Montgomery and Delaware county borders (McCoy, 1982). We have also collected this species at Hibernia County Park in central Chester County. The Carnegie Museum specimen and a second uncollected conspecific were found under the same stone on a moist slope.

Plethodon cinereus Redback Salamander
Specimen records: AMNH 116533-9; "1-2 mi. west of Nottingham"; CM 14660; "pine barrens near Nottingham"; CM 27261-3, "1 mile S of Nottingham, pine barrens"; CM 124153-67*, "Mystery Hole Trail, Nottingham County Park"; USNM 384701-52, "0.3 mile S and 0.7 mile W of Nottingham."

Common under rocks, logs and debris at almost all localities within Nottingham Park, including serpentine barrens and deciduous woodland. By far the greatest number of specimens observed in the area are "redback" phase individuals.

Plethodon glutinosus Northern Slimy Salamander
Specimen records: CM 27258, "Octoraro Creek, 2.5 miles NW of Nottingham"; CM 118296, "Octoraro Creek at State Route 272".

Despite the existence of appropriate habitat, this species has not been found within the borders of Nottingham Park. Although generally common in southeastern Pennsylvania, slimy salamanders do not appear to occupy all suitable sites.

Pseudotriton ruber ruber Northern Red Salamander
Specimen record: CM 38673, "SW corner of county".

This species was also recorded by Warny (1985) from the serpentine area, although without specific locality.

Anura

Bufo americanus americanus Eastern American Toad

Specimen records: CM 37515, "Horseshoe Camp"; CM 118317-9; "Nottingham Township"; 136987-8*, "Buck Trail, Nottingham Park".

In Nottingham Park, American toads have been observed primarily in non-serpentine areas. Tadpoles have been observed in flooded wheel ruts as well as temporary pools adjacent to Black Run.

Pseudacris crucifer crucifer Northern Spring Peeper

Specimen record: CM 124152*, "seep between Black Run and south end of McPherson Lake".

Small choruses have been heard near McPherson Lake during late March.

Pseudacris triseriata feriarum Upland Chorus Frog

Specimen records: CM 26459-60, "½ mile southwest of Nottingham".

McCoy (1982) suggested that the Chester County records of this species might be intergrades between the coastal plains subspecies, *P. t. kalmi*, and the typical Piedmont form, *P. t. feriarum*. The former subspecies is found at its range limits in Pennsylvania and is endangered in the state. The voucher specimens were collected in 1939 and there appear to be no recent records from the area.

Rana catesbeiana Bullfrog

Specimen record: One specimen was collected near Black Run (10/05/91) and donated to the Danube Research Institute, Hungary (Dr. Miklos Puky).

Bullfrogs have also been observed in Small Pond and calls have been heard at the Mystery Hole.

Rana clamitans melanota Green Frog

Specimen records: AMNH 118117, "Nottingham County Park"; CM 14693, "pine barrens near Nottingham"; CM 124168*, "Black Run, near McPherson Lake, Nottingham Park"; CAS 180302*, "Small Pond, Nottingham Park".

Green frogs are common in slower-flowing portions of Black Run, in most of the small tributaries of Black Run, and in all permanent still-water habitats in Nottingham Park. Tadpoles (Villanova University collection) were collected in Black Run on 5/25/93.

Rana palustris Pickerel Frog

Specimen records: AMNH 118115-6, "Nottingham County Park"; ANSP 16300-5, "Nottingham"; CM 136985-6*, "Black Run, Nottingham Park"; AMB 3889*, "Black Run, by McPherson Lake, Nottingham Park".

Pickerel frogs are very common in the more swiftly flowing reaches of Black Run. Specimens have been observed as late in the year as 10/05/91. Although this is the most commonly encountered ranid in Nottingham Park, McCoy (1982) found no records of the species for southwestern Chester County.

Rana pipiens Northern Leopard Frog

McCoy (1982) depicted only two localities for the northern leopard frog in Chester County. One of these is in the area of Oxford, just to the north of Nottingham. This species appears absent from Nottingham Park itself, but may be present else-

where in areas adjacent to the barrens. As noted by Pace (1974) the leopard frog has a very patchy distribution south of the glacial limit. Following earlier authors Pace suggested that some sort of biological interaction between *R. palustris* and *R. pipiens* was responsible for the distribution of the latter in this region. If this is the case and examples of strict syntopy between the two taxa are rare, the ubiquity of the pickerel frog in and around Black Run would also argue that the absence of *Rana pipiens* from Nottingham is not artifactual.

Rana sylvatica Wood Frog

Specimen record: CM 26461, "½ mile south of Nottingham."

This species was heard calling near the Mystery Hole Trail, Nottingham Park on 24 March, 1991 and a mass of eggs was collected at that time (now in the Villanova University teaching collection). Despite several searches in early spring 1994 no adult specimens could be located.

Rana utricularia utricularia Southern Leopard Frog (questionable record)

Specimen record: CM 26386, "½ mile south of Nottingham".

Groves (1985a) regarded this record as invalid. The general restriction of this species in Pennsylvania to the Atlantic Coastal Plain along the lower Delaware River makes the record highly suspect. Nonetheless, the specimen was collected by a professional herpetologist and its identification has been confirmed (E. J. Censky, pers. com.). It remains possible that the locality is in error, but it is also possible that the species once occurred in this part of Chester County, a situation perhaps comparable to that involving the Chester County record of *Ambystoma tigrinum* (see introduction).

REPTILIA

Testudines

Chelydra serpentina serpentina Common Snapping Turtle

Specimen record: a single unnumbered carapace from Nottingham Park is in the possession of the Chester County Department of Parks and Recreation.

This species is occasionally reported from Nottingham Park by park staff. Although nearby Pennsylvania records supported by voucher specimens are rare, McCauley (1945) plotted several localities in northwestern Cecil County, Maryland.

Sternotherus odoratus Common Musk Turtle

Specimen record: ANSP 16299, "Nottingham".

The single museum specimen is an old record, but Nottingham Park personnel report occasional sightings of musk turtles.

Chrysemys picta marginata × *C. p. picta* Painted Turtle

Specimen record: ANSP 16175, "Nottingham".

Additional specimens were observed basking in McPherson Lake, Nottingham Park, on 25 May 1993. Ernst and Ernst (1971) presented evidence that the eastern Pennsylvanian populations of painted turtles are intergrades between the eastern and midland subspecies. This view has been maintained in more recent reviews (McCoy, 1982; Conant and Collins, 1991).

Clemmys guttata Spotted Turtle

Specimen record: CM 124151*, "seep between Black Run and south end of McPherson Lake, Nottingham Park".

This specimen is the first recorded from southwestern Chester County. It was collected from under a submerged tussock of reeds on 24 March 1991.

Terrapene carolina carolina Eastern Box Turtle

One recently crushed specimen was on 23 April 1993 on the Mystery Hole Trail, but was not collected. The Nottingham Park headquarters has the remains of several specimens found dead in various areas of the park.

Serpentes

Carphophis amoenus amoenus Eastern Worm Snake

Specimen record: CM 37189, "Horseshoe Camp".

Coluber constrictor constrictor Northern Black Racer

Specimen records: AMNH 126711-2, "Nottingham County Park".

The only published record of this species from southwestern Chester County seems to be that of Warny (1985).

Diodophis punctatus edwardsii Northern Ringneck Snake

Specimen records: AMNH 126714, "Nottingham County Park"; CM 37184, "Horseshoe Camp"; CM 136982-3*, "near McPherson Lake, Nottingham Park".

Ringneck snakes are common in Nottingham Park. In 1993 three individuals were collected from a single rock pile and in May 1994, in a different area of the park, two individuals were found under a single stone. Conant (1946) reviewed intergradation in the subspecies of ring-necked snakes and concluded that the southeastern Pennsylvanian populations are referable to *D. p. edwardsii*, although he did not examine Chester County material. Our specimens possess the complete neck ring of this subspecies but exhibit the midventral row of dots typical of the nominate form.

Elaphe obsoleta obsoleta Black Rat Snake

Specimen records: CM 38671, "SW corner of county"; CM 118320, "Freemont Road, Nottingham Township"; CM 140185, "Mystery Hole, Nottingham Park".

CM 118320, first reported by Hulse and Hulse (1992), constituted the first Chester County record with precise locality for this species, although Warny (1985) had previously recorded it from an unspecified region in the serpentine barrens. The specimen from Nottingham Park was an old individual, with many scars and blind in one eye. In life the venter of this specimen was tinged with red.

Lampropeltis triangulum triangulum Eastern Milk Snake

Specimen records: CM 37182, "Horseshoe Camp"; CM 136984*, "Mystery Hole Trail, Nottingham Park".

Nerodia sipedon sipedon Northern Water Snake

Specimen records: AMNH 126713, "Nottingham County Park"; CM 140184, "Black Run, near south end of McPherson Lake, Nottingham Park".

Water snakes are common in the park and occupy all aquatic habitats. A large specimen was seen in Small Pond, Nottingham Park on May 25, 1993 and a shed skin was found in

branches overhanging Black Run near McPherson Lake.

Opheodrys aestivus Rough Green Snake

Specimen records: CM 25776-7, "Camp Horseshoe, Octoraro Creek at Mason-Dixon Line"; CM 37183, "Horseshoe Camp"; CM 37512, "Horseshoe Scout Res."; CM 118784, "Camp Horseshoe, along Octoraro Creek".

As reviewed by McCoy (1982, 1985b) Horseshoe Camp is one of only two localities in the state from which this species has been collected, although literature records exist for several other counties. Rough green snakes have been seen and collected regularly for more than 35 years at Horseshoe Camp, at the southern end of the Goat Hill Barrens, but have never been found further north or east in Chester County.

Thamnophis sauritus sauritus Eastern Ribbon Snake

Specimen record: CM 124169*, "100 meters SW Mystery Hole, Nottingham Park".

A juvenile ribbon snake was captured and released along the bank of Black Run in late April 1993. In May 1994 two individuals were seen suspended in vegetation over the edge of Black Run. This species is relatively common along watercourses throughout the Nottingham area.

Thamnophis sirtalis sirtalis Eastern Garter Snake

We have not collected this species near Nottingham, but it is widespread throughout the state and was reported by Warny (1985) from the area under study.

Virginia valeriae valeriae Eastern Earth Snake

McCoy (1982) reported a single record from the Nottingham area. The distribution map presented for this species by Shaffer (1991) does not reflect the existing knowledge of the distribution of the smooth earth snake in Pennsylvania. The relatively secretive habits of this snake make it possible that it is more common in southern Chester County than has previously been recognized.

Discussion

In comparison to the 13 species of amphibians and reptiles reported by Warny (1985) for the serpentine area of Chester County, we identified 27 species that are represented by voucher material or reliable published records. In addition, the ubiquitous *Thamnophis sirtalis* was reported by Warny (1985) and is very likely to occur in the region. *Rana utricularia* is represented by a single museum specimen, although its occurrence in southwestern Chester County possess a zoogeographic problem, and *Rana pipiens* has been reported from Oxford, only a few kilometers from Nottingham (McCoy, 1982). Assuming that these two additional snakes and one of the ranids do actually occur near Nottingham, the total herpetofauna would be 30 species, or 65% of the known amphibian and reptile species of the county and 41% of those of the state of Pennsylvania as a whole. The majority of these records come from an area of only a few square kilometers in and around Nottingham Park, Horseshoe Camp and the town of Nottingham. Twenty-two of the species have been recorded from the 651 acres of Nottingham County Park alone.

In addition to the species so far recorded from the Nottingham area, several taxa are known from elsewhere in southeast-

ern Pennsylvania or have broad distributions that might reasonably be expected to include the area under evaluation. Although some of these may ultimately be found in southwestern Chester County, many are probably excluded by one or more biological determinants of fine-scaled distribution. For example, the constraints of suitable breeding sites may be especially stringent for salamanders, and the relatively open, dry country of the barrens does not support the vernal ponds that are preferred by many species (McCoy, 1989b). The absence of suitable breeding ponds in the immediate vicinity of Nottingham make it unlikely that *Ambystoma jeffersonianum*, *A. opacum*, *A. maculatum* or *Notophthalmus viridescens* will be found in the area, and the lack of boggy habitats probably precludes the occurrence of *Hemidactylium scutatum*. McCoy (1982) recorded only a single locality for *A. maculatum* in Chester County, but this was derived from a literature record and was not supported by museum vouchers. We have collected larvae of this species at Hibernia Park, in west central Chester County. The single literature record of *Gyrinophilus porphyriticus* from Chester County is suspect and it is likely that this species is actually absent from southeastern Pennsylvania (McCoy, 1982).

Among anurans *Bufo woodhousei fowleri* generally prefers low-lying sandy soils which are lacking from the area under consideration. *Acris crepitans* is another possible inhabitant of the Nottingham region and suitable habitat exists at Small Pond for the species, however, there are no museum records from Chester County or adjacent Lancaster County for the species (McCoy, 1982) and the fact that no calls of this species, which has a protracted breeding season, were ever heard in the region suggests that it is absent. The species has been extirpated from Long Island (Conant and Collins, 1991), suggesting that it is susceptible to human-mediated habitat disturbances. No museum records exist from southern Chester County for the gray treefrog, *Hyla versicolor*, but there is a literature record from the south central region of the county (McCoy, 1982). It is highly likely that this species occurs in the Nottingham area, but more extensive springtime night searches based on call identification will be required to verify its presence.

Among reptiles, *Clemmys muhlenbergii* is certainly absent from the Nottingham region owing to a lack of appropriate habitat, although other areas of southern and central Chester County do support populations of the bog turtle. *Clemmys insculpta*, on the other hand, may well occur in Nottingham Park or elsewhere near the Maryland State Line. Despite the species relatively broad habitat tolerances, however, there are evidently few records from southern Chester, Lancaster and York counties (McCoy, 1982).

The only confirmed record for the broad-headed skink, *Eumeces laticeps*, in the Commonwealth is from West Chester, Chester County (McCoy, 1982). The distribution of this species in Maryland and Delaware suggests that this species must have once been present in the border area of Chester County, but despite the efforts of both amateur and professional herpetologists, only one specimen (CM 37513) has ever been collected or identified with certainty in Pennsylvania. Appropriate wooded habitat is present in Nottingham Park, but

the likelihood of the occurrence of this species is low and it may by now be extirpated from Pennsylvania. *Sceloporus undulatus* has been reported from pine woods in the east-central part of Nottingham Park (J. Subach, pers. com.) but with uncertainty. Its presence has not been confirmed by a specimen. McCoy (1982) listed no records of this species from Chester County, although several records exist for adjacent Berks County as well as eastern Delaware County and central and western Lancaster County. This species is exceedingly rare in southeastern Pennsylvania and verification of the existence of a population in the Nottingham area should be a priority for future research in Chester County.

Among the snakes not yet recorded for the Nottingham area, the eastern hognose snake, *Heterodon platirhinos*, is perhaps the most likely to be added to the herpetofauna. Existing museum and literature records for Chester County are restricted to the northernmost areas of the county (McCoy, 1982), but the species occurs adjacent to the Nottingham region in Cecil County, Maryland (McCauley, 1945; Harris, 1975). McCoy (1982) suggested that the loss of crayfish from many waterways had contributed to the extirpation of *Regina septemvittata* from much of its former range in eastern Pennsylvania. Crayfish are still reasonably plentiful, however, in the Black Run system and it is possible that the species may still be present. Surprisingly, there are no museum or literature records of the northern brown snake, *Storeria dekayi*, from Chester County. This species is, however, extremely common in nearby Delaware and Montgomery counties (McCoy, 1982; pers. obs.). There seems no obvious reason for its exclusion from the county, although the minimal ground cover in the barrens themselves may exclude it from part of the border area of Pennsylvania. Finally, the copperhead, *Agkistrodon contortrix*, has been recorded from southern Lancaster County and from central Chester County (McCoy, 1982), as well as from northern Cecil County, Maryland (McCauley, 1945; Harris, 1975), but not from the region around Nottingham. Because many or most claimed sightings of this species in Pennsylvania actually refer to *Nerodia sipedon* or *Lampropeltis triangulum*, only voucher specimens or photographs should be considered as evidence of its occurrence near Nottingham.

The species that occur in Chester County and in the Nottingham area are essentially those characterized by McCoy (1989a) as statewide in occurrence, or as widespread non-montane forms. There are no serpentine endemic amphibians or reptiles in Pennsylvania, however, the presence of the somewhat drier, more open barrens probably does play a role in promoting regional diversity by providing preferred habitat for a number of snake species that reach their distributional limits in southeastern Pennsylvania. At least some groups, such as insects (Opler, 1985) exhibit distributional patterns that reflect the serpentine substrate. The effect on terrestrial vertebrates is less clear, but elsewhere in the world (e.g., New Caledonia), ultramafic regions are known to support endemic reptile species (Bauer and Vindum, 1990; Bauer and Sadler, 1993). On a practical level, however, regardless of the role of serpentine soils on the herpetofauna of barrens, the existence of the barrens themselves may be a key to the conservation of

local amphibians and reptiles. Conservation efforts to protect the serpentine-endemic plants of the State Line Barrens guarantee the preservation of habitat for all native wildlife as well.

Clearly, the herpetofaunal diversity of the Nottingham area argues for its biological and conservation significance. Yet, as of 1989 Chester County, and southeastern Pennsylvania in general, supported none of the 25 amphibian and reptile sanctuaries designated by the Pennsylvania Department of Environmental Resources (McCoy, 1989a). At present over 1300 acres of the Goat Hill/Nottingham Barrens are protected by the Nature Conservancy or the Chester County Department of Parks and Recreation and the physical habitat of the amphibians and reptiles of the Nottingham and Goat Hill Barrens is secure. Nonetheless, threats to the herpetofauna still exist. Octoraro Creek, which runs through the western part of the barrens, has been heavily stocked with fish (Grantham, 1979), a factor which has been implicated in amphibian decline elsewhere (Russell and Bauer, 1993). Likewise, both McPherson Lake and Small Pond have resident fish populations, which probably severely limit the ability of amphibians to successfully utilize these sites.

Although the Pennsylvanian herpetofauna has been treated in several recent popular works (Shaffer, 1991; Allen, 1992), these have not provided detailed locality information and the ranges depicted in range maps in these publications do not allow interpretation of distributions on a fine enough scale to gauge local patterns of species richness. Despite its proximity

to Philadelphia, which for almost 200 years has been a center of herpetological research in America, it seems that southern Chester County remains relatively poorly surveyed. The same is probably also true of many other suburban counties throughout the United States. Documentation of herpetofaunal diversity and the identification of areas of special conservation concern should be a focus for regional herpetological groups.

Acknowledgements

We thank Rich Wood, Jim Subach and the Chester County Department of Parks and Recreation for permitting us to work in Nottingham Park and for providing information about sight records. Ellen J. Censky and the late Jack McCoy of the Carnegie Museum, Ted Daeschler of the Academy of Natural Sciences of Philadelphia, Darrel Frost of the American Museum of Natural History, Bob Reynolds of the United States National Museum and Jens Vindum of the California Academy of Sciences facilitated the use of data and specimens in their care. Ellen Censky also arranged for the prompt cataloguing of our specimens from Nottingham and kindly verified the Carnegie Museum specimen of *Rana utricularia* from Nottingham. Numerous people, especially members of the Villanova University "lower vertebrate biology" classes of 1991 and 1993 assisted with field work in Chester County. Mark Witter thanks his family for their infinite patience during his absences in the woods. Specimens were taken under scientific collecting permits issued to the authors by the Pennsylvania Fish and Boat Commission.

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The Reptiles and Amphibians of Coleman County, Texas

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Abstract

A herpetological survey was performed in Coleman County, Texas, in the summer of 1993. In all, five species of amphibians and 20 species of reptiles were collected.

Introduction

Coleman is one of 254 counties in Texas and is located between the meridians of 99 and 100 degrees west longitude. It has an area of approximately 1,281.5 square miles (Figure 1). I conducted a herpetological survey of Coleman County, Texas, from 8 July 1993 to 10 October 1993, while pursuing a master's degree at Angelo State University. Table 1 includes the actual numbers of individuals of each species that were collected or identified. Thus the survey provides some measure both of species richness and diversity. I shall be using the taxonomic nomenclature of Conant and Collins (1991).

History

Coleman County was created and organized in 1858 from Brown and Travis counties and named after Sam Houston's aide, Robert M. Coleman, a figure in the Texas Revolution.

General Features

Coleman County is mainly composed of gently sloping uplands. Interrupting these are spectacular mesa-like mountains scattered through the county (Botts et al., 1974). The county's lowest elevation is 396 m at the Colorado River and the highest elevation is 686 m in the northwest part of the county (Nixon, 1978). There are three major lakes in Cole-

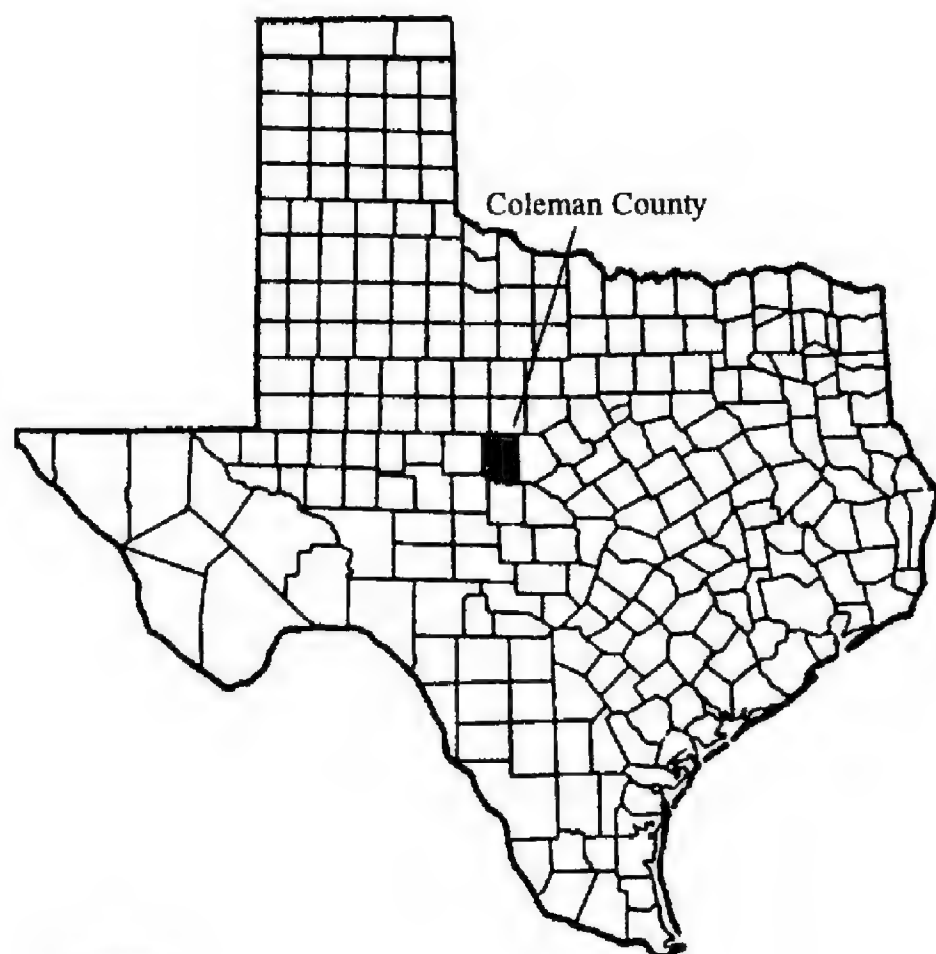


Figure 1.

Table 1.

Species collected	Number of specimens collected
● <i>Bufo debilis</i>	1
■ <i>Bufo speciosus</i>	1
● <i>Bufo valliceps valliceps</i>	7
● <i>Rana blairi</i>	1
<i>Rana catesbeiana</i>	4
● ■ <i>Crotaphytus collaris collaris</i>	12
<i>Phrynosoma cornutum</i>	3
<i>Sceloporus olivaceus</i>	1
■ <i>Sceloporus undulatus consobrinus</i>	1
● <i>Cnemidophorus gularis gularis</i>	1
● <i>Coluber constrictor flaviventris</i>	3
<i>Diadophis punctatus arnyi</i>	1
<i>Elaphe guttata emoryi</i>	4
<i>Elaphe obsoleta lindheimerii</i>	4
<i>Masticophis flagellum testaceus</i>	9
<i>Nerodia erythrogaster transversa</i>	3
● <i>Opheodrys aestivus</i>	3
<i>Pituophis melanoleucus sayi</i>	5
<i>Thamnophis marcianus marcianus</i>	1
● <i>Thamnophis proximus rubrilineatus</i>	2
● <i>Crotalus atrox</i>	8
<i>Pseudemys texana</i>	2
<i>Terrapene ornata ornata</i>	1
● <i>Trachemys scripta elegans</i>	12
<i>Apalone spinifera</i>	4

- Denotes one or more specimens of this species were preserved at Angelo State University.
- Denotes one specimen of this species was preserved at Navarro College.

man County: Ivie Reservoir, Lake Coleman and Hords Creek Lake. The south end of the county is totally bordered by the Colorado River. The average rainfall for the county is 26.9 in (Texas Almanac 1994–1995, 1993).

Mesquite trees, prickly pear and yucca cover the majority of the county, while live oak, post oak and black jack oak are scattered throughout the county. The main types of grasses found in the county are buffalo, needle, grama, spear, and little and big bluestem.

Threatened Species

Coleman County presently has three reptile species on the Threatened Species List: the alligator snapping turtle (*Macrochelys temminckii*), the Concho water snake (*Nerodia harteri paucimaculata*), and the Texas horned lizard (*Phrynosoma cornutum*).

During this survey, three road-killed *Phrynosoma cornutum* were collected. All information collected on these specimens was sent to the Texas Horned Lizard Society.

Material and Methods

Searches were conducted for road kills and live animals early in the morning and late in the evening, on gravel roads, county roads and highways. All specimens were caught by noose, tongs, rubber bands or by hand throughout the county.

Turtle traps were set in and around Hords Creek Lake, but no specimens were collected in this manner. However, using a

rod and reel with chicken liver as bait, three species were collected.

All of the *Crotaphytus collaris collaris* that were caught, were either collected in the riprap of Hords Creek Dam or on top of large rectangular rocks in Area 2 of Flatrock Park (Hords Creek Lake). Three other areas in Flatrock Park have the same type of rocks, although no *Crotaphytus collaris collaris* were seen or collected there. Most *Crotaphytus collaris collaris* were caught with a small noose that was slipped around the neck.

Due to the quickness of the species, only one *Cnemidophorus gularis gularis* was collected. To collect this specimen it was necessary to first stun it with a large rubber band.

With the exception of one *Bufo debilis*, which was caught next to an underground water faucet, no other *Bufo* were caught until 3 August 1993 after a 1.5-inch rain.

Several of the specimens caught were preserved with 10% formalin solution and then transferred to a 70% ethanol solution. Specimens were entered into collections at Navarro College and Angelo State University.

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Catalog Numbers of Preserved Specimens from This Survey

Angelo State Natural History Collection

<i>Bufo debilis</i>	ASNHC 12869
<i>Bufo valliceps valliceps</i>	ASNHC 12868, ASNHC 12872, ASNHC 12876–12880
<i>Rana blairi</i>	ASNHC 12865
<i>Crotaphytus collaris collaris</i>	ASNHC 12873, ASNHC 12881
<i>Cnemidophorus gularis gularis</i>	ASNHC 12882
<i>Coluber constrictor flaviventris</i>	ASNHC 12866
<i>Opheodrys aestivus</i>	ASNHC 12871
<i>Thamnophis proximus rubrilineatus</i>	ASNHC 12875
<i>Crotalus atrox</i>	ASNHC 12870
<i>Trachemys scripta elegans</i>	ASNHC 12867, ASNHC 12874

Navarro College Collection

<i>Bufo speciosus</i>	NC1993.8.23.1T
<i>Crotaphytus collaris collaris</i>	NC1993.8.22.1L
<i>Sceloporus undulatus consobrinus</i>	NC1993.8.24.1L

Book Review: *A Veterinary Guide to the Parasites of Reptiles. Volume I: Protozoa*

by Susan M. Barnard and Steve J. Upton

154 pp. 1994. Krieger Publishing. ISBN 0-89464-832-2

[Available from the CHS Mail Order Service]

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With the ever-expanding interest in keeping amphibians and reptiles, and the sophistication of herpetoculturists, we have seen a flourish of advanced, technical books relating to their veterinary care. Such books have made current medical information and proven techniques readily available to veterinarians who previously had little knowledge of or interest in herptiles. Until recently there was little more than a handful of veterinarians nationwide with the ability to properly care for an ailing or injured reptile. Although there still are not enough of them actively pursuing this type of practice, very few cities do not have at least one specialist. With the number of snakes, lizards and turtles being produced, sold and kept, it is in the best interest of everyone that more veterinarians become trained in this discipline. This book is an excellent advance toward that end.

Outwardly it appears to be targeted for veterinarians, but the authors have taken great pains to make it readable and comprehensible to herpetoculturalists who routinely examine and occasionally treat their animals. In fact, almost every serious reptile keeper will find it useful. No doubt, the greatest benefit will be to those with some training and a powerful microscope. However, following the described procedures should enable the reader to collect and properly prepare fecal samples for lab analysis, with no special background in microbiology or animal medicine needed. For many infected reptiles, this is the primary step in identifying the culprit and diagnosing a treatment. These techniques will be particularly helpful for those breeders living in isolated areas. Certainly this is not all; experienced herpetoculturists will find a wealth of valuable information as they delve into the text. Even with cursory usage, savings in veterinary fees will be realized.

As one might gather from the subtitle, this book is intended as the first of a series. Five companion volumes, addressing the spectrum of parasites known to live in and on reptiles, are proposed. In this first book the authors have done an admirable job of presenting the most prevalent reptile-invasive genera of protozoa, both pathogenic and harmless.

Most importantly, this is not merely a compendium of research done by others, but a hands-on, continuing project that to date has taken 13 years. Thousands of fecal samples, supplied by zoos and private collectors, have been prepared and examined. Data and input from other researchers and veterinarians worldwide have been read, absorbed and assimilated.

The text can be separated into two major sections. The first is a systematic account of the genera, divided into six chapters. Each of the first five are the responsible protozoan phyla, and the sixth is a list of protozoa-like organisms that are difficult to assign taxonomically. The second section is comprised of laboratory procedures, appendices, a glossary, references and an index.

The systematic accounts are concise, yet descriptive enough to identify the parasitic protozoa to the generic level. Line drawings and photomicrographs of many representative species carry identification still further. Each genus account contains a description, the hosts, host location, life cycle, method of transmission, symptoms, method of diagnosis, and designated treatment. In some cases diagrams of the protozoans' life cycles have been included. Two photographs of external symptoms ("star-gazing" and midbody swelling) are included. They have been borrowed from the massive, two-volume *Bio-medical and Surgical Aspects of Captive Reptile Husbandry* (Frye, 1991). It would have been helpful to have others.

The seventh chapter delivers more than its title, "Laboratory Procedures for the Herpetoculturalist," suggests. It is a compendium of techniques necessary to properly collect, fix, stain and inspect reptilian parasitic protozoa, and an array of shortcuts, clever money-saving tips, and formulas for stains and fixatives.

The first appendix is a table of medications, including recommended dosages. Appendix II is an inventory of the sources (including addresses) of the products mentioned in the book. The last appendix is a handy list of the taxa mentioned in the text with their associated parasitic protozoa. The glossary contains excellent and extremely useful explanations of the technical terms that may be unfamiliar to many readers. The last section is a more than adequate selection of references for those who wish to do further research.

Herpetoculturists, reptile keepers and veterinarians. . . . Do not overlook this book! If the companion volumes are as inclusive and well written as this first one, the complete set will be a standard in the field for many years to come. Kreiger (not unlike most other specialty publishers) produces small print runs, and this is destined to become a highly collectible series.

HerPET-POURRI

by Ellin Beltz

Box turtles imperiled by trade

Several related items this month show that box turtle declines are being recognized and reported in the world press.

• The first item is from Reuters wire [Patricia Walsh, *The Miami Herald*, November 18, 1994, from Allen Salzberg]: "For some Europeans, a garden just isn't a garden without a turtle. Meeting this quaint demand is the American box turtle—packed into crates and shipped by the thousands from places like south Florida. Exporters say the long-lived turtles are plentiful and make the trip just fine. Environmentalists disagree. 'They crush each other under their own weight. . . . It's estimated up to 75 percent die in transit,' said Michael Klemens, a herpetologist with the New York-based Wildlife Conservation Society. Klemens scored a victory for the turtles this week at the Convention on International Trade in Endangered Species of Wild Fauna and Flora, or CITES. . . . Delegates meeting in Fort Lauderdale tentatively agreed to list the turtles on Appendix II, a designation that will restrict the export trade. The proposal is expected to pass at the last full CITES session today. Under the CITES action, the U.S. Fish and Wildlife Service can monitor shipping conditions and the number of turtles being exported. It can also try to ensure turtles aren't being exported from any state that forbids it. 'We're trying to do preventative medicine,' Klemens said. . . . 'So much attention usually comes at the last stage, when it's extremely expensive to bring a species back from the brink. If we can identify those species at risk and take preventative measures, it's a much more cost-effective approach to conservation.' But Michael Van Nostrand, a box turtle exporter and owner of . . . [a] pet store . . . , opposed the CITES restrictions. He said the six-inch-long turtles, often caught in Texas and Arkansas, are too numerous to be threatened by exportation and he laughed at Klemens' estimate that 75 percent die in transit. 'I must have shipped out 15,000 this season,' Van Nostrand said, adding 5,000 to 7,000 were shipped overseas and the rest domestically. Klemens said the yen for turtles is a 'traditional thing' in Europe, where they keep 'land turtles in back yards as pets. . . . Most of them die and they renew them every year.' Klemens said when the Mediterranean land tortoise was nearly 'decimated' by the European trade, the European Economic Community banned their importation. Enter the American box turtle. From 1988 to 1993, some 55,000 were exported—mostly to Europe and Japan."

- Jim Hardin sent parts of "Analyses of Proposals to Amend

SPECIES	1990	1991	1992	1993	TOTAL
<i>T. ornata</i>					
Quantity		288	7,018	7,768	14,786
Declared value	—	\$1,918	\$41,105	\$48,697	\$91,697
<i>T. carolina</i>					
Quantity	3,081	13,585	26,361	23,420	66,447
Declared value	\$15,707	\$76,481	\$164,651	\$146,309	\$403,148
Total—both					
Quantity	3,081	13,873	33,379	31,188	81,233
Declared value	\$15,707	\$78,399	\$205,758	\$195,006	\$494,845

the CITES Appendices," dated August 1994, which deal with the box turtle trade. Included is a table (see below) on U.S. exports of *Terrapene ornata* and *T. carolina* from 1990 to 1993. The table is based on U.S. Fish and Wildlife Service data. However, the data for 1990 and 1991 are considered incomplete. The report mentions that the "varying levels of protection" provided box turtles by the different states, "provide loopholes that complicate interstate law enforcement and may facilitate illegal trade." Needless to say, trade in box turtles will continue regardless of any laws passed to prevent it; the CITES regulation merely "regulates" trade in the species. The simple solution to this problem would seem to be to educate Europeans to stop regarding the garden pets as disposable. I know plenty of people (myself included) who keep box turtles alive and well for years on end. How any moral person could just let their tortoise die in the winter is simply beyond me.

Cos-sstly encounter of the snake kind

A Virginia couple stopped overnight at a Comfort Inn in Pikesville, Pennsylvania. In the middle of the night, the 49-year-old man stepped on a 10-foot "boa constrictor." The experience put both him and his wife of 25 years into therapy. In addition, she began smoking cigarettes again after quitting for 14 years. The couple filed a federal lawsuit seeking damages of \$500,000 and \$1 million. They allege negligence and intentional infliction of emotional distress against the Comfort Inn's parent corporations. No one knows where the snake came from according to the Baltimore, MD *Evening Sun* [November 23, 1994, from Mark T. Witwer].

All the newts that's fit to print

The New York Times, a paper which never used to run any sort of "animal stories," seems to have swung the other way lately; although with the incoming speaker of the house being named for a variety of amphibian, perhaps journalists can-newt resist the impulse to pun. First was William Safire (that curmudgeonly keeper of the purity of the English Language), who wrote: "A *newt* is a small lizard related to the salamander and sometimes confused with a spotted eft" [December 4, 1994, from P. L. Beltz]. In response came a letter from a Chicago attorney [sent in to this column by Beatrice Briggs of the Wild Onion Alliance]: "Dear Mr. Safire: Your title ['Newtonian Linguistics'] held out promise of scientific deftness. The concordance correctly got you to 'Eye of newt' in 'Macbeth.' But then you put newt in the wrong class, calling it a lizard. A lizard, of course, is a reptile. A newt is an amphibian, a class whose living members have a well-defined aquatic, larval stage. You remember tadpoles! They also have moist, glandular skin. Reptiles, such as lizards, have dry, scaly skin. Back to your bailiwick, amphibians can be divided into the order Urodela, those tailed throughout life, and Anura, those without tails as adults. Newts, as well as salamanders, belong to the former, and frogs and toads to the latter. The rich language of biological classification is underexposed in your columns. May I suggest a taxonomic table to supplement your concordance? For scientific literacy, Edwin R. McCullough. P.S. Enclosed is a photocopy of a description of the Eastern Newt, *Notophthalmus viridescens*." As if

confusing lizards and salamanders was not bad enough, the December 25, 1994, *New York Times Magazine* has a cute photo of *Notophthalmus viridescens* (Eastern Newt), and a short article which reads: "The latest unscientific Sunday poll, designed to put Newt jokes to rest once and for all," asked various people to define just what "Newt" means to them. The answers ranged from "Like little lizards—they go in the fish tank" to "An eft. That's a three-letter word for newt, as every crossword puzzle devotee knows." Then, to compound the error-laden tradition of *The New York Times* interpretation of newts, the final paragraph reads, "If you said, 'It's any of several small semiaquatic salamanders of the genus *Triturus* and related genera; it has four legs and scaleless skin and, while lizardlike, it's an amphibian, not a reptile,' you may renew your contract with America." Folks, the genus *Triturus* was sunk several years ago for any North American species; the name survives only as a generic for European animals. In eastern North America, the genus is *Notophthalmus*; for western North America, the generic name is *Taricha*. I guess after so many years of refusing to run "animal stories," the famed *NY Times Stylebook* just doesn't cover critters.

Robo-lizard?

A student at Cornell University has discovered the mechanism by which the Solomon Islands skink can wrap its tail around branches. The tail contains a group of cone-shaped muscles stacked on top of the other. These are then bound to a group of collagen fibers that permit the tail to bend in any direction while some parts remain rigid. The student suggests that this design may be of help to robot engineers. [*Science*, Volume 265, 26 August, 1994; *The Chicago Tribune*, November 27, 1994, from Steve Ragsdale; and *The Scientist*, September 19, 1994, from Joan Moore]

Sea Turtle News

- Six sea turtles, including four Kemp's ridley turtles, were washed up on the shore of Cape Cod, Massachusetts, in early December. The New England Aquarium provided assistance to the animals, which were nearly insensible due to the cold water. The turtles were very small, about six inches long and from four to five pounds each. The aquarium plans to ship the survivors back to Florida. [*Chicago Tribune*, December 3, 1994, from Steve Ragsdale, Claus Sutor and P. L. Beltz; Reuters wire from Allen Salzberg]
- The Associated Press reports: "Federal officials say they may have to consider shutting down Texas' shrimp season if fishermen do not heed requirements for sparing turtles from drowning in shrimp nets." A spokesman for the National Marine Fisheries Service said "We're at the point now where we're deadly serious about getting tough with shrimpers who kill turtles." This year, 57 turtles were reported dead in the first week the shrimp season was open. The resulting flurry of activity by state and federal agency workers apparently reduced the number of dead turtles, but did not eliminate the carnage. The spokesman said, "It seems to us there's a direct relationship with how tough we get with enforcement and a low number of turtle strandings." The Earth Island Institute claimed that more than 500 dead turtles were found on or off the Texas-Louisiana coast this year, including more than 270 Kemp's Ridley turtles. They report decapitated or mutilated

turtles as well. Officers boarded 188 shrimp vessels in late July; 24 violators were cited and seven shrimp catches were confiscated. The Texas Shrimp Association president blames the turtle deaths on pollution and removal of abandoned oil rigs by means of explosives. The organization is offering a reward to information on anyone mutilating turtles. They say that closing the shrimp season would eliminate \$600 million from the state economy and that 30,000 workers would be affected. Texas fishermen landed 8.5 million pounds of shrimp in July this year, and 7.2 million pounds in July 1993. [Baton Rouge, LA *Sunday Advocate*, September 4, 1994, from Ernie Liner]

- Workers at the Kemp's ridley nesting beach in Rancho Nuevo, Mexico, are pleased with the results of their efforts to dig up and sequester eggs. This permits more baby turtles to hatch, by protecting them from animal and human predation. They report that the number of nesting females has doubled since the low point in 1985. [Houma, LA *Courier*, November 29, 1994, from Ernie Liner]
- According to Todd Steiner, director of the Earth Island Institute, Mexicans kill endangered sea turtles "for their skin, which is made into exotic leather purses and shoes, and their shells are ripped off their bodies to make cigarette lighters and shoe horns." In addition, stores reportedly sell sea turtle cream for skin blemishes. The U.S. Fish and Wildlife Service seized \$567,247 representing 9,350 separate turtle products at borders from 1988 to 1993. It is estimated that this is only about 10 percent of the actual number of items imported. The Mexican government closed a factory slaughterhouse that killed more endangered animals than any other single operation in the world in 1990, but left a legal loophole through which sea turtle products are still slipping: they permitted the sale of items in inventory before 1990. Environmental activists hope to get the U.S. government to investigate their claims. Under the 1978 Pelly Amendment, the Interior and Commerce Departments are required to investigate claims of lax enforcement of endangered species laws in other countries. [Houma, LA *Courier*, November 1, 1994, from Ernie Liner]
- A television ad in support of a ban on commercial fishing nets in Florida is apparently not what it purports to be. Critics claim that the sea turtle and dead fish shown in the ad were netted by a marine research project, not commercial fishermen. The film was shot during testing of various turtle excluder devices. All the turtles were released unharmed. [Orlando, FL *Sentinel*, November 4, 1994, from Bill Burnett]
- Officials at a Costa Rican wildlife refuge have curtailed the illegal trade in turtle eggs by taking over the business! They remove only eggs they consider "doomed"; those laid early in a mass nesting which will likely be destroyed by later females, and those laid in the dry season which would probably desiccate. The official egg sellers have undercut the illegals by pricing their eggs lower than chicken eggs, and have provided a new source of income for local people who now benefit by managing the turtle egg resource instead of blindly exploiting it. [*ZooGoer*, November-December 1994, from Mark T. Witwer]
- Florida voters overwhelmingly approved a ban on net fishing beginning July 1. All gill and entangling nets, as well as nets larger than 500 square feet are banned within three miles of the state's Gulf of Mexico coast, and within one mile of the

Atlantic Ocean coastline. Supporters claim the law will protect the state's declining fisheries and marine wildlife; opponents say it's the end of the industry. [Leesburg, FL *Daily Commercial*, November 30, 1994, from Bill Burnett]

- Record numbers of sea turtle eggs were laid on Brevard and Volusia county (Florida) beaches this year according to an article in the *Orlando Sentinel* [November 26, 1994, from Bill Burnett]. Loggerheads laid 14,730 nests along a 13-mile stretch of beach and green sea turtles laid 1,107 nests in the same area. Lighting problems and beach driving, however, still take their toll on the hatchlings.
- A report came through an Internet subscription service recently from *Projeto Tamar* in Brazil. On 25 December 1994 they hatched 22 albino loggerheads (*Caretta caretta*), out of a clutch of 112. They have hatched albino sea turtles in the past, but these are the first that have been morphologically normal. The writer wanted to know if there were any other reports of albino sea turtles. So folks, are there?

Thanks to everyone who contributed this month including those listed above and Ray Boldt, Marty Marcus, J. N. Stuart, Ilene B. Sievert (please write more Frog City!), Steven Ragsdale, Mr. Laverne Copeland, Bill Montgomery and Kathy Bricker. Extra special thanks to. . .

- Brian Bankowski for photos of his recent trip to Costa Rica;
- Super-contributors Bill Burnett and David Webb for their photo cards;
- Ernie Liner, Steven Ragsdale, and Bill Burnett for sending only photocopies;
- Allen Salzberg for being the only contributor to do so via Internet; and
- to my regular readers, writers and clippers everywhere!

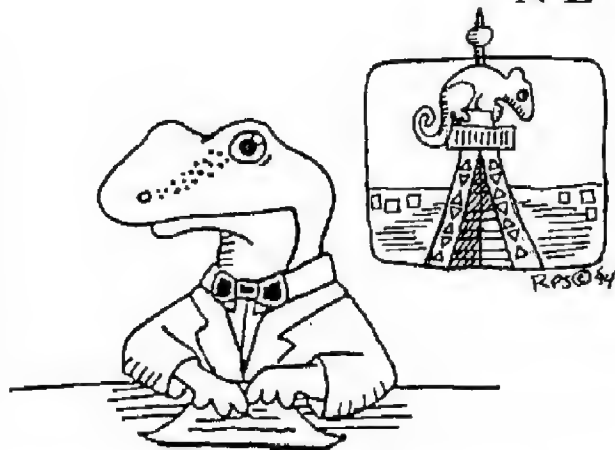
Start 1995 with a bang! Send clippings, cards, letters and photos to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago IL 60614-5507, or e-mail text only to: uebeltz@uxa.ecn.bgu.edu.

Buil. Chicago Herp. Soc. 30(1):15-16, 1994

NEWLINE

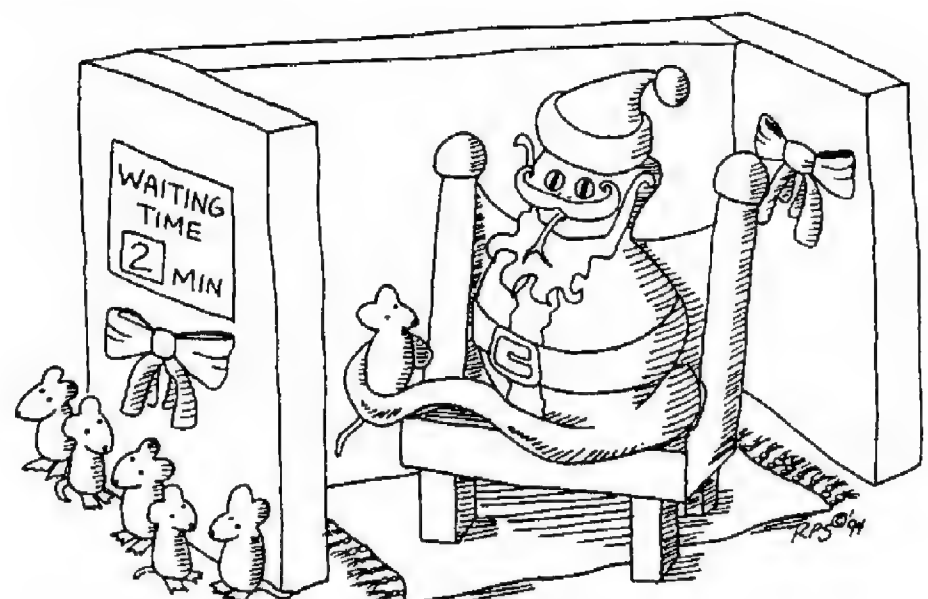
The November 30, 1994, meeting of the CHS was one that should not have been missed. In the past, the annual election meeting has kept many away like a snake in brumation. Whether it was apathy or just bad timing — falling amidst Thanksgiving, Hanukkah and Christmas — this time was no different. Turn-out was low. However, this time a welcome change occurred. . . .

The meeting began as usual with President **Marcia Rybak** requesting the committee reports. Membership Secretary **Steve Spitzer** could not recall the exact total number of members, but encouraged us to purchase CHS gift memberships for the holidays. Librarian **Lisa Koester** announced that there would be no library cart because this was her last date of service. It was sad and disturbing to be told that if no one volunteered to assume the duties of librarian, the books could be liquidated and the service discontinued. Merchandiser **Joan Moore** explained that she didn't want to go through the painstaking work in setting up the table for so little anticipated crowd, and instead spoke to us about special editions of foreign publications available. Show Chairperson **Sally Hajek** had no shows to report. Adoption Chairperson **Ben Entwisle** read a long list of animals awaiting adoption, including a spiny-tail iguana, box turtles, ball and Burmese pythons, a savannah monitor, and the usual overabundance of green iguanas. **Ron Humbert** announced the Second Annual Expo was still in contract negotiations with Triton College and, regretfully, that he had nothing new to report on the Horsfield's tortoises, "No news is probably good news." He asked



that those interested in attending the meeting of the Fox Valley Land Federation on December 4 to promote the preservation of the Fox River shoreline ecosystem in Kendall and LaSalle counties see him for the details. Turtle club rep **Chuck Keating** announced the annual pot-luck meeting would be advanced to December 18 due to the Christmas holiday. **Char Hague-wood** reported the Midwest Symposium Committee will hold its meeting sometime in January and suggested we see a Board Member for details or to offer suggestions.

The business portion was followed by the traditional Awards Ceremony. Marcia Rybak gave the President's Award to **Don Wheeler** and thanked him for his work on T-shirt designs, posters and "Spot" cartoons. **Stacy Miller**, Chairperson of the Awards Committee, welcomed **Brian Jones** to "The Plaque Club" as she presented him with the Board Merit Award stating he, "served above and beyond the call of duty." Marcia Rybak was given a gavel to commemorate her term as CHS President. Stacy thanked **Gery Herrmann** for having the plaques engraved.



SSSSSSanta listened patiently as the hoppers told him what they wanted for Christmas

Bypassing the raffle, Marcia encouraged us instead to volunteer our services on the next Board of Directors and run for office suggesting it was a great addition to a resumé. Brian Jones invited any last minute nominations from the floor. There were none. One by one, the following were elected by acclamation: Marcia Rybak – President; Steve Spitzer – Vice-President; Gary Fogel – Treasurer; Jill Horwich – Recording Secretary; John Driscoll – Membership Secretary; Brian Jones – Corresponding Secretary; Mike Dloogatch – Publications Secretary; Art Nohlberg – Sergeant-at-Arms; and Chris Lechowicz, Steve Vick, Mike Ross and Jack Schoenfelder – Members-at-Large. The entire process lasted a total of ten minutes! This unprecedented event took place without the tallying of ballots or the wasting of paper, and without the tedious, yet often humorous election speeches.

It was then time for what was possibly the most memorable guest speaker presentation of the year. At monthly meetings, we see the same loyal members and friends as the years go by, and yet, we seldom get the chance to view their herp collections or hear of their many field trips or overseas adventures. However, something new was started this year by Anthony Rattin. This year the successful “shorts” program gave local members the chance to give short presentations of their own choosing. This evening was only slightly different. There would be no out-of-town guest speaker following the elections. Our members *were* the guest speaker. In tribute to this new format, volunteer speakers assembled their slides shortly before the meeting began. Making his debut first was Bill Peterson. His presentation began with stories of his trip to the orient. In Taiwan, “Snake Alley”, as he termed it, is not ruled by snakes, but by vendors who disassemble snakes for profit. A bowl of snake soup can be purchased for a mere 25 cents, along with pickled snakes and cocktails of snake blood. His slides were disturbingly graphic in nature. Photos of gallbladder drippings were taken as the snake was being gutted and skinned alive. If that wasn’t enough to turn a calloused stomach, he went on to show us detailed photos of envenomation wounds suffered by victims of Mexican rattlesnakes. He concluded with this moral, “Don’t fool around with poisonous snakes.”

Next up to the podium was Gary Fogel. Gary, a ten-year CHS member, showed slides of “pets” that had passed away or were out on breeding loan. His 2½-year-old Madagascar chameleon was delightful shown perched atop a miniature replica of the Eiffel Tower and eating crickets from a brandy snifter. His Arizona mountain kingsnake and Honduran milk-snake were brilliantly colorful. He showed us his hatchling collared lizard and mixed in slides of tuataras taken on his trip to the St. Louis Zoo. He went on to show us some of Marcia Rybak’s collection taken in her basement, or as Gary prefers, “Rybassic Park.” He showed us Marcia’s baby water dragons and her “shoe-biting” tortoise.

Brian Jones, a member for six years, showed us slides of 7 enormous chuckwalla eggs. Unfortunately, the hatchlings were short-lived. On a happier note, “Stanley,” a female green iguana, has laid fertile eggs. They are being incubated and he hopes for the best.

For those who didn’t know, Ron Humbert has a strong interest in tree frogs. He showed us slides of the gray tree-

frog, green treefrog, squirrel treefrog, barking treefrog, a European treefrog, a Mexican treefrog, a South American treefrog, and White’s treefrog. Many were very old and some lived in his potted plants in his dining room.

Anthony Rattin presented a quick slide tour of the 1994 CHS Expo at Triton College. He showed photos of CHS members and curious visitors, elaborate cage displays, participating vendors, and some of the main animal attractions. He was followed by Steve Spitzer who, I am sure you’ve guessed, gave us a presentation on his *Rhinoclemys* turtles. While he acknowledged his amateur photography, he did manage to get a few photos of some hatching box turtle eggs, along with a herd of baby box turtles.

Next in the cornucopia of topics was “Protein in the Green Iguana Diet” by veterinarian, Dr. Steve Barten. His educational presentation was well deserving of a much longer program. Short, but to the point, Dr. Barten believes that animal-based proteins, such as mice or dog food do not belong in a green iguana’s diet and most often prove fatal over a period of years. He showed us slides of an iguana’s kidney damaged by the feeding of dog food. He explained that, unfortunately, symptoms may not appear for several years and that, by the time they do, 75% of the kidney is lost resulting in irreversible kidney failure. He recommends feeding iguanas only plant-based proteins and emphasized the need to provide them with adequate heat and light. He showed us detailed X-rays of an iguana’s chest cavity. Swelling above the hind legs was a good indication of kidney damage. A biopsied mineralized kidney containing fibrous scar tissue was shown. He argues that no one has adequately studied the nutritional requirements of the green iguana. He cited references from, *Iguanas of the World* and the *Journal of Herpetology* to support his claims.

The final speaker was Mike Dloogatch, a veteran 27-year member of the CHS. He dug through his boxes of slides to show us his trip to Ecuador with the group, Earthwatch. Due to the rush in getting everyone’s slides together for the presentation, several of Mike’s slides were sideways or reversed. Fortunately, the direction did not matter thanks to the beautiful photography. He showed us the Pacific side of the Andes mountains and the Rio Palenque research station. Photos of anoles, vine snakes, a snapping turtle, glass frogs, poison-dart frogs and salamanders were shown. Some of the amphibians were yet to be scientifically described.

While some would see this as similar to boring “home movies”, I found it fascinating. Yes, a few of these members might be looked upon as amateurs in the field of herpetology and public speaking, however, their love of these creatures is more than evident and this was a wonderful opportunity to get to know our CHS friends.

Happy Holidays!

We stay in touch, so you stay in touch.

NEWT

Unofficial Minutes of the CHS Board Meeting, December 9, 1994

The meeting was called to order at 8:27 P.M. by Marcia Rybak. Board members Gary Fogel, Jim Gaspar, Stacy Miller, Tony Rattin and Jack Schoenfelder were absent.

Officers' Reports:

The Minutes of the October board meeting were read and approved. There was no November board meeting.

The Treasurer's Report was read and approved. Marcia Rybak would like to consider raising membership dues in 1995. There was a brief discussion regarding the 1995 budget. Marcia Rybak will ask Jack Schoenfelder to prepare same. Ideas for generating additional income were discussed.

Current CHS membership is 1,818. The new CHS Membership Directory is ready. Clause Sutor moved and Ron Humbert seconded that the CHS allocate \$100 for the duplication and stapling of 200 new Membership Directories. The motion carried unanimously. John Driscoll has been learning the computer procedures for the Membership Secretary position.

Old Business:

Legislative: Chris Lechowicz reported that he has received most of the available information from Illinois and is now in the process of obtaining information from the State of Indiana, as many CHS members live in or near Indiana.

Shows: The CHS has signed the contract and paid the fee to participate in the Arlington Pet Show, scheduled for March 24-26. Ron Humbert reported that FermiLab's annual "Expand Your Horizons" program for high school girls to explore career options in science fields is scheduled for March 11. The CHS has once again been invited to participate. Marcia Rybak and Char Haguewood volunteered to do this presentation.

Raffle: Chuck Keating has volunteered to run the raffle during 1995. Other volunteers are also needed.

Programs: The board agreed that Tony Rattin did a great job as Program Chair. Our new Program Chair, Steve Spitzer, welcomes suggestions for speakers or programs for 1995.

Library: Lisa Koester has resigned as CHS librarian for 1995 after several years of excellent service. Marcia Rybak believes we have a new volunteer for that position, to be confirmed shortly.

Expo: Triton College may be willing to host the CHS Expo on Memorial Day weekend. Expo Chair Ron Humbert plans to investigate other possible sites for the Expo. Any ideas are encouraged. Expo committee meetings will begin in January.

Adoptions: Ben Entwisle may have to resign as Adoption Chair because of outside commitments. Char Haguewood volunteered to assist during the next couple months, after which time Ben Entwisle will have a better idea as to the level of involvement to which he can commit. Adoption activity has decreased since the summer months.

1995 Midwest Symposium: Three speakers have already accepted our invitation. The next Symposium committee meeting will take place at Mike Dloogatch's office on January 6, at about 7 P.M.

Publications: The board voted not to finance the publication of any books at this time.

Answering Machine: A discussion was held regarding obtaining "call forwarding" to transfer calls received at the CAS to a CHS financed line to be installed in Brian Jones' home. In any event, a new answering machine is clearly needed. Brian Jones moved and Jill Horwich seconded that the CHS allocate \$50 to purchase a new, state-of-the-art machine for installation at either location. The motion carried unanimously. Marcia Rybak will further investigate call forwarding.

Renewal Letter: Marcia Rybak's husband has drafted a renewal solicitation letter to be sent to nonrenewing members. Claus Sutor moved and Brian Jones seconded that the CHS send such a letter to the 500 most recent nonrenewals to try to recapture lost members. Jill Horwich amended the motion and Ron Humbert seconded that the CHS allocate not more than \$551 for this project. A discussion was held. Steve Spitzer moved and Claus Sutor seconded that the motion be tabled until the January meeting.

New Business:

Audit: Marcia Rybak will appoint a committee to conduct the annual internal audit of the CHS finances.

Conant: Marcia Rybak will write a letter on behalf of the CHS, supporting the nomination of Roger Conant for the Cleveland Museum of Natural History's David S. Ingalls, Jr. Award for Excellence.

SSAR Conference: SSAR plans to host a Regional Herpetological Society Conference at Appalachian State University in Boone, North Carolina, in August 1995. The Regional Herpetological Society Liaison is currently soliciting presentations or information regarding special activities, events or projects that may be of interest to other regional societies. The CHS will send Jack Schoenfelder's recent presentation given at the 1994 Midwest Herpetological Conference, and may consider sending Jack Schoenfelder as well.

Workshops: Nicole Marrello will work with Marcia Rybak to organize educational herpetological workshops for small groups in 1995.

Meeting Topics: The board reached a consensus that any controversial or potentially offensive topics or video presentations must be cleared by the Program Chair before the general meeting for which the presentation in question is scheduled.

Round Table

Anyone who has a male Blanding's turtle available for adoption should contact Ron Humbert.

The CHS needs more enthusiastic, interested volunteers, other than board members, to participate in the Society's activities, events, committees and fund-raising efforts.

The meeting adjourned at 10:57 P.M.

*Respectfully submitted by the Recording Secretary,
Jill Horwich*

Advertisements

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Attention: the Varanid Information eXchange is a society of herpetoculturists sharing an interest in MONITOR LIZARDS. Members receive the bimonthly newsletter, *VaraNews*. Annual membership is: U.S., \$10; foreign, \$12 surface/\$15 air. For a free copy, send a legal-size SASE to: Varanix, 8726D S. Sepulveda Boulevard, #243, Los Angeles CA 90045.

Fauna classifieds: monthly classified publication for reptiles, amphibians, food items & supplies, literature and more. Excellent information source, worldwide circulation. Subscription \$14/year. Free sample & info. Write: FAUNA, 2379 Maggio Circle Unit C, Lodi CA 95240.

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For sale: *THE GOURMET RODENT*: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, 6115 SW 137th Avenue, Archer FL 32618, (904) 495-9024.

For sale: top quality mice, rats and Chinese dwarf hamsters. All sizes at competitive prices. Gary W. Allison, 919 Wyandotte Street, Bethlehem PA 18015, (215) 974-8975.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, \$.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: high quality feeder mice. Shipped UPS Next Day Air. All mice are properly processed to insure a quality product. Fourth year of production and supply of frozen feeder mice. Prices: pinks, \$25/100; fuzzies, \$30/100; weanlings, \$35/100. Also available are 4 oz. + rats, \$100/100. Quantity discounts available. The Mouse Factory, P.O. Box 85, Alpine TX 79831, (915) 837-7100, Ray Queen.

For sale: rodents and reptiles, Dallas-Ft. Worth Metroplex. J.R.'s Cowtown Critters, 1002 Harrison Avenue, Arlington TX 76011, (817) 460-RATS.

For sale: Pearlco ceramic heating elements, come in 60w, 100w and 150w, \$25 each or 2/\$48 plus shipping. In stock, Flex-watt and Ultra-therm heating products. Frozen rodents always available. Mice: pinks-crawlers, 3/\$1; weanlings, 40¢; subadult, 50¢; adults, 65¢; large adults, 75¢. Rats: small, 85¢-\$1; medium, \$1.25-2.00; large, \$2.25-2.75; jumbo, 3/\$10. Call on quantity discounts [note: discount on orders picked up at CHS meetings]. Live rodents available at higher prices. Available now: updated fall newsletter/catalog—many unique/hard-to-find herp husbandry items. It's also baby snake season! Send business-size SASE for catalog, or call. Scott J. Michaels, D.V.M., Serpent City, P.O. Box 657, Island Lake IL 60042, (815) 363-0290.

For sale: Rats only, small and medium, live or frozen, quantity discounts. Shipping available. Call or write for price list. Steve Waldrop, c/o Steve's Rodent Farm, Rt. 7, Box 1154, Haleyville AL 35565, (205) 486-8876.

For sale: FROZEN RODENTS. Mice pinks, \$25/100; adults, \$35/100; breeders, \$55/100; rats, \$75/100 and up, jumbo available occasionally. KJ's Rodents, R.R. 1, Box 266, Detroit Lakes MN 56501, (218) 439-6999.

For sale: SUPERWORMS, *Zophobas morio*, ultimate food for reptiles, birds, fish; \$18.95/lb., plus \$3 shipping. Keeps 8-10 months at room temperature, far less chitin for complete digestibility. Send SASE for information to Joe Sutter, P.O. Box 59119, Birmingham AL 35259, (205) 871-5570, 4 P.M. - 7 P.M. Central Time.

For sale: turtle and tortoise chow, excellent food—1 lb, \$5; 3 lbs, \$10; 5 lbs, \$15 (postage paid). Send cash, check or money order to Herp's Delight, Dept. C, 20 Ablett Avenue, Whitesboro NY 13492.

For sale: large selection of captive born reptiles and amphibians, books and supplies. Send S.A.S. business-size envelope for complimentary price list or \$5 for a 1 year subscription (bi-monthly), to Twin Cities Reptiles, 540 Winnetka Avenue North, Golden Valley MN 55427, (612) 593-0298.

For sale: reptile cage disinfectant and deodorant. Kills many types of infectious disease detrimental to herps. \$3.91 for 2 oz (makes 1 gallon). Wholesale and quantity prices available. Make checks payable to Bengal Pets, Inc., 1088 Chapman Road, Jesup GA 31545, (912) 530-6384.

For sale: Tired of getting bitten while collecting, feeding or maneuvering animals? Try my Whitney tongs—10% discount to herp society members—2', \$65 each; 2½', \$66 each; 3', \$67 each; 3½', \$68 each; 4', \$69 each; 5', \$85 each; 6', \$90 each. Will ship U.P.S. extra. Send money order or cashier's check to Don Lunsford, 5661 Walkerton Drive, Cincinnati OH 45238.

For sale: overstock sale. Phillips plastic boxes (aka Wilson; Wilhold; Stillwell). Shoe boxes, \$2.25 each or \$25/dozen; high sweater boxes, \$6.15. Serpent City, (815) 363-0290.

For sale: *Rattlesnake Hunting*, a 60-minute video by a 30-year veteran collector. Don't miss this one! It's as close to being in the field as you can get. (Not a slick commercial production.) Send check or money order for \$19.95 plus \$3 postage & handling to: D. Wheeler, 2705 Sunset Trail, Riverwoods IL 60015. Allow 4-6 weeks for delivery.

For sale: collection of 120 different outdated antivenom/snakebite kits from all over the world, \$600. Also, collector's item—snake catching box made and used by Carl Kauffeld. This is the box Carl used on his collecting trips to South Carolina, 30"l x 20"h x 12"w, three compartments, top opens and two side compartments. Box was never cleaned out and still has (unsoiled) *Staten Island Sunday Advance* newspapers dated April 17, 1977. See book *Snakes and Snake Hunting* for picture of box, \$500. Steve, (516) 957-3624. [NY]

For sale: set of five posters first published by Army Air Forces Tactical Center for easy identification and habits of venomous snakes of the world, \$9 postpaid; *Field Guide to the Snakes of South Vietnam* by Simon Campden Main, \$10 postpaid; *Batrachia of North America* by E. D. Cope, \$16 postpaid; *Laboratory Anatomy of the Iguana* by J. C. Oldham and H. M. Smith, \$17 postpaid; *Time of the Turtle* by J. Rudloe, \$5 postpaid; *Atlas of Amphibians and Reptiles of New Zealand* by C. P. Pickard and D. R. Towns, \$18 postpaid. Catalog of over 4000 herpetological titles sent free upon request. Herpetological Search Service & Exchange, 117 E. Santa Barbara Road, Lindenhurst NY 11757, (516) 957-3624.

For sale: herp books. *Australia's Reptiles* by Wilson and Knowles, 1992 (1989), a photographic reference to Australia's terrestrial reptiles, 447 pp., 847 color photos, illustrates most species and subspecies, hardbound, \$85; *A Field Guide to the Snakes and Lizards of New South Wales* by Gerry Swan, 1990, color photo of each species, description, natural history, range maps, bibliography, \$34; *Sssimply Snakes* by Rob Bredl, 1993, 25 pp., many b&w photos, softbound, identification of Australian venomous snakes, myths and snakebite treatment, \$17.50. All in excellent condition, prices postpaid in U.S. William R. Turner, 7395 S. Downing Circle W., Littleton CO 80122, (303) 795-5128.

Advertisements (cont'd)

For sale: three stackable cages, 35"l x 18"w x 18"h, sliding glass doors, ideal for all terrestrial reptiles, screened vent holes, fitted for 2' light, will not separate, \$200. Also, male Everglades rat snake, 1 year old, tame, excellent color, \$45. (708) 597-6172 evenings.

For sale: custom cages, built in as little as three days, 48" cages start at \$135. Glass front, heating and lighting included. Flip top with lock. Creature Comfort, (708) 896-1703.

For sale: c.b. 1994 female Indonesian blue-tongue skink, \$125; c.b. 1994 pair of Sinaloan milksnakes, \$125. Jeff Dundek, (708) 361-5835.

For sale: blue-tongued skinks (*Tiliqua scincoides intermedia*), c.b. July '94, beautiful colors/patterns, voracious feeders, growing fast, \$150 each; veiled chameleons (*Chameleo calyptratus*), c.h. August & September '94, great feeders, well established, growing like weeds, \$75 each. Several unrelated bloodlines available from both species. Dan or Phil, New York Reptilia, Inc., (718) 461-1371 phone, (718) 461-0749 fax. Closed Mondays.

For sale: rhinoceros iguanas; Cuban iguanas; green iguanas; *Geochelone sulcata*; *G. elephantopus* (Florida sales only). D. J. or Sam, (305) 680-8492. [FL]

For sale: three male and three female 4-5" star tortoises, 2-year captives, \$2500 for group or \$550 each; two male and two female adult bowsprit tortoises, will not separate, long-term captives, \$1600 for group; two male and eight female adult pancake tortoises, long-term captives, \$275 each or \$1900 for group; two male and five female adult veiled chameleons, \$1000 for group. Also have c.b. leopard tortoises now starting to hatch, \$85 each, ten or more, \$75 each. Ted Crawford, 11791 N. Mandarin Lane, Tucson AZ 85737, (602) 575-1268.

For sale: large male African spur-thighed tortoise, 6 years old, c.b., A+ condition. Nancy Gordon, (815) 485-6642. [Mokena IL]

For sale: 1994 hatchlings. Trans-Pecos rat snakes, \$35 each; Durango mountain kings (*greeri*), \$125 each; rosy boas (*trivirgata trivirgata*), \$65 each; rosy boas (*saslowi*), \$100 each. I would like to thank all those who responded to my previous ad in the *Bulletin*. Steve Mitchener, (405) 748-6566 after 6 P.M. CST. [Oklahoma City]

For sale: one male and one female *Pituophis melanoleucus ruthveni*, produced young this year, \$800/pair; one male and two female *P. m. melanoleucus*, produced young this year, \$270/trio; one male and one female *P. m. annectans*, Applegate variety albinos, 2', \$400/pair; 20" female *Lampropeltis triangulum campbelli*, \$75. Russell Jenkins, (601) 373-3135.

For sale: one male and one female Mexican milks, proven breeders, \$175 each or \$300/pair; one male and one female Pueblan milks, proven breeders, \$225 each or \$400/pair; one male and one female 2-year-old yellow rats, \$100/pair; 2-year-old male Sinaloan milk, \$100; one male and one female Sinaloan milks, proven breeders, male is absolutely perfect—Schuett stock, \$250 each or \$400/pair; 1-year-old male and 2-year-old female "red" western hognose snakes, \$200/pair [permit required in IL]; female "green" western hognose, \$65 [permit required in IL]; albino striped male Cal. king, proven breeder, \$125; 5' male green tree python, 5½ years old, bred this season and last, proven male, just shed and back on feed, eating 200 g, fresh-killed rats off forceps, lots of blue spots and dog-tame, \$1250. All prices are negotiable. Robert, (312) 927-8617 phone, (312) 927-8618 fax.

For sale: 6½' adult female boa constrictor, \$300. Jack Phillips, (708) 724-4552.

For sale: Kenyan sand boas, c.b. 12/93, \$100. Al, (708) 447-1330.

For sale: one male and one female 4-year-old Argentine boas, *Boa constrictor occidentalis*, 6-7' female from L.A. Zoo stock, 5' male from wild-caught parents, both on rabbits or rats, mostly jet-black with a white background, make offer; five male Dumeril's ground boas, *Acrantophis dumerili*, two bloodlines, \$275 each; four male and four female Kenyan sand boas, *Eryx colubrinus loveridgei*, possible anerythristic hets., \$75 each. The Bean Farm, ask for Giovanni, (206) 861-7964.

For sale: one male diamond python with paperwork; one male and six female emerald tree boas; one female black blood python; one female Solomon Islands ground boa; two male and one female boa constrictors; one male amethystine python; one male and one female 8' albino Burmese pythons; one male Indian python; one female green anaconda, tame, proven breeder; one male and one female 8' Burmese pythons, \$250/pair. Inquire about the above. Steven Bostwick, (515) 967-5716. [IA]

For sale: 5' male carpet python, \$375; one male and two fat female Borneo blood pythons, breeding size, \$200 each or \$550/trio; 16' male green Burmese python, \$700, and a 12' female albino Burmese python, \$600 (will sell the pair together for \$1100). Steve Faust, 130 Cypress Hollow Road, Dorchester SC 29437, (803) 462-7805.

Free!!! NATION'S LARGEST CATALOG of reptile and amphibian supplies at the guaranteed lowest prices. Big Apple Herpetological's 48-page catalog includes incubators, cages, heating, digital thermostats & thermometers, lighting, cage accessories, husbandry & feeding/dosing equipment, medications, vitamins, foods, herp shirts and books. We also sell a large variety of reptiles. For FREE catalogs and product orders: (800) 666-6672. For product information: (212) 799-9065. For reptile information and sales: (212) 799-5231. Visa, MasterCard, Discover accepted. BIG APPLE HERPETOLOGICAL, P.O. Box 632, New York NY 10023.

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Software: "Animal TRACKS" since 1986—complete animal management software for managing your personal animal collection or field notes for herps/birds/mammals. IBM compatible. Full program, \$100. Working demo, \$10, deductible with purchase. For more info or ordering: Frank Slavens, P.O. Box 30744, Seattle WA 98103, (206) 542-6751 phone, (206) 546-2912 fax.

Software: **TRACS™**—Total Reptile and Amphibian Control System. The most complete database and reporting solution for automating your breeding records. Perfect for hobbyists, commercial breeders and institutions. Only \$129. IBM PCs and compatibles. For more information or ordering contact Marcia Rybak at Leapin' Lizards, 736 N. Western Avenue, #315, Lake Forest IL 60045, (708) 735-8205 phone or (708) 735-8206 fax.

Tortoise Shell Society: All about turtles, tortoises and terrapins. Free sample copy of newsletter. Send name and address to Tortoise Shell Society, P.O. Box 8181, Flint MI 48501.

Tours: Five-day South Carolina herp and fossil tours, April–November 1995. Mini expeditions in search of 30-million-year-old turtles and crocodilians; living reptile hunts (vipera, king and rat snakes, turtles, anoles, broadhead and five-lined skinks, treefrogs and other amphibians), exotic reptile shopping and camping in a black water swamp forest. Finest Charleston hotels beginning and end of each tour. Twelve people per tour. Family plans available. \$489. For reservations call Steve Faust, (800) 894-TOUR.

Tours: **Grab this trip quick!** Experience the magnificence of the Amazon aboard the SS Delfin. Join **William W. Lamar**, co-author of *The Venomous Reptiles of Latin America* in **Peru** for the herp-hunting trip of a lifetime. From 50 to 100 species of reptiles and amphibians are generally encountered per trip. I have reserved space for 14 persons, July 8–15, 1995, with Green Tracks Inc. **Cost: 8 DAYS ALL-INCLUSIVE FROM MIAMI, \$1895.** (Optional one-week extension available.) **Recruit your friends!** Price per person will reduce according to the number of participants. A deposit of \$200 will reserve a place. For additional information call Green Tracks Inc. at (800) 9-monkey or trip co-leader **Bill Lamoreaux** at (214) 946-3588.

Advertisements (cont'd)

Tours: Custom-designed tours to Costa Rica, Panama, Belize and Guatemala. Expeditions to fit the specialized needs of herpers, photographers, educators, writers, professionals in search of data, and travelers just interested in visiting these countries (with or without their families). From \$649. Steve Faust, (800) 894-TOUR.

Wanted: reptile keeper with a strong interest in herpetology to participate in the care and management of a 900-specimen collection, SSP and TAG programs. Candidates should have a college background in the biological sciences. Basic computer, written and verbal skills important. Mechanical, carpentry, electrical and photographic skills helpful. Starting salary \$24,000 plus medical and dental benefits, three weeks vacation and 12 holidays. Position available immediately. Send resumé to John Behler, Department of Herpetology, Bronx Zoo, Bronx NY 10460, (718) 220-7114 fax.

Wanted: interns. The Miami Valley Serpentarium, a nonprofit organization, is seeking student interns for the 1995 spring, fall and summer seasons. MVS is an educational exhibit and a reptile breeding - venom research facility, located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Salary and benefits include experience with the most extensive and diverse collection of snakes in the area, housing and \$55/week in pay. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering spring (March-May), summer (June-August) or fall (September-November) is required. To apply send a cover letter and resumé to: James R. Harrison, Executive Director, MVS Reptile Zoo, 1275 Natural Bridge Road, Slade KY 40376. Deadlines for applications are: spring, January 21, 1995; summer, March 20, 1995; fall, June 15, 1995.

Wanted: photos of the following species for possible purchase of 1995 hatchlings—northwest Peru boa (blue phase); Jamaican boas; Peruvian rainbow boas; jungle carpet pythons; Baja California mountain kings (*Lampropeltis zonata agalma*); coastal mountain kings (*L. z. multifasciata*). I am also interested in photos or slides of rare forms of *Pituophis*. Send photos and general info to Craig Roehm, P.O. Box 10834, Erie PA 16514.

Wanted: black kingsnakes (*Lampropeltis getula nigra*), prefer c.b. hatchlings or older. Locality data important. Bart Bruno, (203) 773-9257. [CT]

Wanted: styrofoam boxes, any size or shape so long as they're not flimsy, preferably with cardboard liners, willing to pay from \$2 to \$5. Bring to CHS meetings. Scott J. Michaels, D.V.M., Serpent City, (815) 363-0290.

Wanted: the CHS Book Service is always in need of styrofoam "peanuts" for packaging shipments. Don't discard them; recycle by bringing them to Joan Moore at any monthly meeting.

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (312) 588-0728 evening telephone or (312) 782-2868 fax.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, January 25, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. **Jim Rowan**, long-time keeper at Lincoln Park Zoo and a professional wildlife photographer, will be the January speaker. His talk will be "Travels of a Wildlife Photographer" and will take us to Costa Rica, the Galapagos Islands, Amazonian Ecuador, Borneo, and maybe New Zealand. The slide show will include reptiles and arachnids, and also birds and other wildlife.

We are required to use the entrance on the west side of the museum. We have permission to use the staff parking lot to the west of the museum. Entrance to this lot is from McFetridge Drive, the wide street just to the south, between the museum and Soldier Field. There is also free parking available in the lot to the north of the museum.

The #146 CTA bus goes directly to the museum. Unfortunately, it does not operate after 9:00 P.M. However, after the program anyone needing a ride to a CTA stop will have no trouble finding one—just ask any board member.

Turtle Club

The Chicago Turtle Club will meet Sunday, January 22, 1:00–3:30 P.M., at the Emerson Park Field House, 1820 W. Granville Avenue, in Chicago.

DONATIONS TO THE NOVEMBER 30 RAFFLE

The following is a listing of those individuals and businesses who generously donated items for our monthly raffle at the November 30 meeting. The donated items are shown in parentheses.

Ghann's Cricket Farm (cricket gift certificate); Reptile News Press (*Bullsnakes, Pine Snakes & Gopher Snakes, Guide to the Reptile Body*, Save Soap, tarantula mug); Tetra Terra fauna (Reptical); Valentine Equipment (egg candler); ZooMed (Repti-Cave, under-tank heater); Grubco (mealworm gift certificate); Rep-Cal (Rep-Cal); Advanced Vivarium Systems (*The General Care and Maintenance of Prehensile-tailed Skinks*); Fancy Publications (subscription to *Reptiles*); Marcia Rybak (hot rock); Pretty Pets (small tortoise food); Guy Johansen (dinosaur T-shirt); Flukers Farms (iguana diet); Wardley (Reptile 10); Critter Country (herp bumper sticker); The Nature Conservancy (frog poster); Wayne Thompson (large aquarium).

NORTH TEXAS SYMPOSIUM

The third annual North Texas Herpetological Society Spring Symposium, "Herpetoculture Today," will take place at the La Quinta Inn and Conference Center in Arlington, Texas, on April 28–30, 1995. For more information call (214) 933-HERP, or write to NTHS at P.O. Box 1043, Euless TX 76039.

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